

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of producing a thin film by plasma CVD on an inner wall surface of a substrate, said substrate having ~~a substantially tubular structure~~ an inner wall, said method comprising the steps of:

providing said substrate in a chamber for plasma CVD; and

flowing a gas for plasma reaction over said inner wall surface and applying a pulse voltage from a high voltage pulse source on said substrate without substantially applying a DC bias voltage source on said substrate to form said thin film on said inner wall ~~surface~~ surface.

wherein the high voltage pulse source applies an electric field in a range of 20 to 300 kV/m, said inner wall faces an inner space of said substrate, and the inner space has a diameter of 0.9 mm or smaller.

2. (Original) The method of claim 1, wherein a difference of a pressure is generated in the longitudinal direction of said substrate.

3. (Original) The method of claim 1, wherein said substrate has one opening therein communicating with said space.

4. (Original) The method of claim 1, wherein said thin film comprises diamond or diamond like carbon.

5. (Withdrawn-Currently Amended) A system for producing a thin film by plasma CVD on an inner wall surface of a substrate facing a space formed in said substrate, said substrate having an inner wall, said system comprising:

a chamber for plasma CVD and for containing said substrate;

a supply hole for supplying a gas for plasma reaction into said inner wall surface of said chamber; and

a ~~means~~ high voltage pulse source for applying a pulse voltage on said substrate,

wherein said gas is flown into said space and said ~~means~~ high voltage pulse source applies a pulse voltage on said substrate without substantially applying a ~~direct-DC~~ bias voltage on said substrate to form said thin film on said inner wall ~~surface~~ surface, said high voltage pulse source applies an electric field in a range of 20 to 300 kV/m, the inner wall faces an inner space of said substrate, and the inner space has a diameter of 0.9 mm or smaller.

6. (Withdrawn) The system of claim 5, further comprising a means for generating a difference of a pressure in the longitudinal direction of said substrate.

7. (Withdrawn) The system of claim 5, wherein said substrate has one opening therein communicating with said space.

8. (Withdrawn) The system of claim 5, wherein said thin film comprises diamond or diamond like carbon.

9. (Previously Presented) The method of claim 1, applying the pulse voltage being performed without accelerating ions.

10. (New) The method of claim 1, wherein the substrate is a substantially tubular structure.

11. (New) The method of claim 1, wherein the high voltage pulse source applies an electric field in a field of 20 to 200 kV/m.

12. (New) The method of claim 1, wherein the high voltage pulse source has a pulse width in a field of 1 to 50 μ s.

13. (New) The method of claim 1, wherein the high voltage pulse source has a pulse period in a range of 100 to 10,000 Hz.